

Claims

What is claimed is:

1. An amplifier, comprising:

a first amplifying stage comprising a common-base transistor; and

5 a second amplifying stage, coupled to the first amplifying stage, comprising a cascode transistor pair.

2. The amplifier of claim 1, further comprising an input matching network coupled between an input terminal associated with the amplifier and the common-base transistor.

10 3. The amplifier of claim 1, further comprising an inter-stage matching network coupled between the common-base transistor and the cascode transistor pair.

4. The amplifier of claim 1, further comprising an output matching network coupled between an output terminal associated with the amplifier and the cascode transistor pair.

15 5. The amplifier of claim 1, further comprising at least one matching network comprising at least one shunt-stub microstrip transmission line.

6. The amplifier of claim 1, wherein the first stage and the second stage are implemented in accordance with a silicon-based technology.

20 7. The amplifier of claim 1, wherein the first stage and the second stage are implemented in accordance with a silicon germanium technology.

8. The amplifier of claim 1, wherein the amplifier is a low-noise amplifier.
9. The amplifier of claim 8, wherein the low-noise amplifier is implemented in accordance with a millimeter-wave communications receiver.
10. The amplifier of claim 1, wherein the amplifier is a unilateral amplifier.
- 5 11. The amplifier of claim 1, wherein a current associated with the second stage is adjustable.
- 10 12. Apparatus for amplifying an input signal, comprising:
 a low-noise amplifier operative to amplify the input signal, wherein the low-noise amplifier is implemented in accordance with a silicon-based technology and the input signal is a millimeter-wave signal.
13. The apparatus of claim 12, wherein the low-noise amplifier comprises:
 a first amplifying stage comprising a common-base transistor; and
 a second amplifying stage, coupled to the first amplifying stage, comprising a cascode transistor pair.
- 15 14. The apparatus of claim 13, wherein the low-noise amplifier further comprises an input matching network coupled between an input terminal associated with the low-noise amplifier and the common-base transistor.
- 20 15. The apparatus of claim 13, wherein the low-noise amplifier further comprises an inter-stage matching network coupled between the common-base transistor and the cascode transistor pair.

16. The apparatus of claim 13, wherein the low-noise amplifier further comprises an output matching network coupled between an output terminal associated with the low-noise amplifier and the cascode transistor pair.

5 17. The apparatus of claim 12, wherein the low-noise amplifier further comprises at least one matching network comprising at least one shunt-stub microstrip transmission line.

18. The apparatus of claim 12, wherein the low-noise amplifier is implemented in accordance with a silicon germanium technology.

10 19. Apparatus for amplifying an input signal, comprising:
an amplifier operative to amplify the input signal, wherein the amplifier is implemented in accordance with a silicon-based technology and comprises at least one matching network comprising at least one shunt-stub microstrip transmission line.

20. A communications receiver, comprising:
a low-noise amplifier comprising:
15 a first amplifying stage comprising a common-base transistor; and
 a second amplifying stage, coupled to the first amplifying stage,
comprising a cascode transistor pair.